MODELING OF MEDIA USAGE FOR DISASTER INFORMATION COLLECTION DURING THE 2011 THAI FLOOD

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1. Introduction

The Chao Phraya River Flood of 2011 (hereafter, the 2011 Thai flood) was a widespread disaster that caused extensive and long-term damages both in Thailand and abroad. The flooding alone lasted for several months, and people were thus highly reliant upon disaster information in order to keep abreast of the flood's progress and to make decisions such as home preparations, purchasing of supplies, whether to evacuate, and so forth. However, the means by which Thai people collected their information may have varied depending on their individual characteristics – especially considering the wide gap in income and education among the Thai population.

It is important to prepare social systems to strengthen the response to future disasters, but such systems need to take into account how socio-economic differences may affect information collection behavior. In this paper, a media usage model for disaster information collection based on demographic characteristics is proposed using data from a survey on information collection behavior during the 2011 Thai flood [1].

2. Methodology & sample characteristics

2.1. Survey design and distribution

Data on information collection behavior of Thai people were gathered using a questionnaire survey. The contents were provided in the Thai language and designed to, among other goals, clarify respondents' media usage and demographic characteristics. The survey was distributed via two methods: an anonymous online survey and a paper-based field survey.

2.2. Sample characteristics

The survey received 764 responses from Thai people, with the demographic distributions as shown in Table 1.

3. Results & discussion

3.1. Utilized media modes

The media usage behavior for all respondents is summarized in Figure 1. "Television" was the most-used media mode, followed by "inter-personal communication," such as face-to-face and dial-in hotlines, and "traditional Internet media," such as websites and information portals. The least-used media mode, "direct communication tools" such as email, video chat, and instant messenger, was still used by nearly 20% of the Thai respondents. On average, Thai respondents utilized 3.6 different media modes.

3.2. Logistic regression

Logistic regression was carried out to examine the suitability of the demographic characteristics for predicting media usage. The results are summarized in Table 2 by media mode. For "television," the logistic regression model suggests that usage will decrease primarily with age and among male respondents; however, only the result for age is highly significant. Males are less likely to use "radio," and a decrease in income and age corresponds to an increase in the usage of "loudspeakers," which were highly and somewhat highly significant, respectively. For printed media, only age was found to be significant, although not a strong predictor.

Table 1 Sample characteristics (N=764)

Income (annual)	Very low	Low	Middle	High	N/A
	23.3%	20.9%	35.2%	11.9%	8.6%
Age (years)	20-29	30-39	40-59	60 ≤	N/A
	30.7%	27.3%	32.5%	6.3%	3.1%
Educ.	≤ Junior high	High school	College	Grad. school	N/A
	14.6%	13.2%	50.8%	19.2%	2.1%
Gender	Male		Female		N/A
	42.0%		56.7%		1.3%
Student	Yes		No		N/A
	14.5%		79.2%		6.3%

Note: "Very low": ≤3,200 USD, "Low": 3,000-4,800 USD, "Middle": 4,800-16000 USD, "High": ≥16,000 USD, "N/A": Did not answer

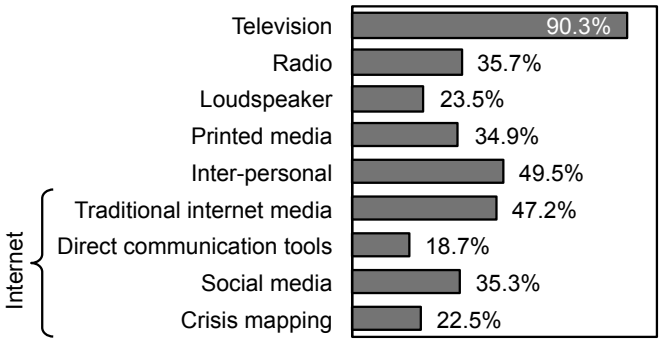

Figure 1 Media usage for all respondents (N=764)

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Table 2 Logistic regression analysis of demographics as predictors of media mode usage

Media modes			Demographic characteristics				
			Income	Age	Education	Gender	Student
Television		z	-0.032	-0.385	0.081	-0.294	-0.025
		Sig.	0.873	0.000 ***	0.568	0.312	0.968
Radio		z	-0.204	-0.009	-0.158	-0.414	-0.087
		Sig.	0.070 .	0.904	0.051 .	0.013 *	0.771
Loudspeaker		z	-0.508	0.210	-0.076	0.190	-0.039
		Sig.	0.000 ***	0.008 **	0.410	0.323	0.906
Printed media		z	0.011	-0.151	-0.002	0.138	-0.205
		Sig.	0.918	0.038 *	0.977	0.402	0.486
Inter-personal		z	-0.026	0.039	-0.105	0.045	0.507
		Sig.	0.807	0.562	0.179	0.774	0.076 .
Internet	Traditional internet media	z	0.177	-0.665	0.613	-0.414	-0.116
		Sig.	0.165	0.000 ***	0.000 ***	0.024 *	0.708
	Direct comm. tools	z	0.128	-0.337	0.292	-0.098	0.252
		Sig.	0.371	0.002 **	0.008 **	0.632	0.448
	Social media	z	0.058	-0.477	0.666	-0.074	0.051
		Sig.	0.652	0.000 ***	0.000 ***	0.683	0.866
	Crisis mapping	z	0.326	-0.176	0.381	0.026	0.458
		Sig.	0.016 *	0.058 .	0.000 ***	0.892	0.159
*Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*							

Among the Internet-based media modes, however, both age and education were strong and highly or somewhat highly significant predictors for all modes except "crisis mapping." For these modes, the logistic regression model predicts that usage will decrease with an increase in age and decrease in education.

3.3. Media usage model considering demographics

The results of the analysis revealed marked differences in the utilization of media modes depending on the demographic characteristics. When examining the overall media usage, it is apparent that internet-based modes were being utilized by more-educated or younger people as their secondary information source after television. Considering that the information provided by television is limited in its ability to cover specific details, this pattern of primarily relying on television and internet-based sources suggests that these people were receiving general information via television and turning to the internet to retrieve more detailed information, such as that specific to their situation or area (Figure 2).

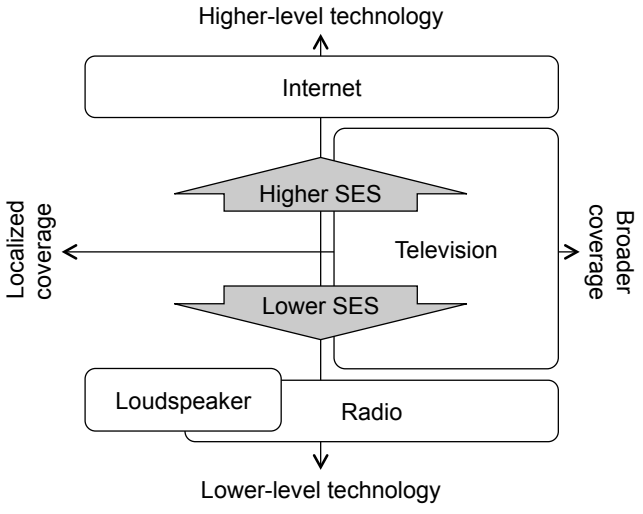

Figure 2 Visualization of model for media usage

Conversely, it was found that respondents with lower education and higher age had a much lower tendency to utilize online media modes. In contrast to the "high" technology modes, however, the usage of "low" technologies such as radio, loudspeaker, and interpersonal communication did not always increase accordingly with the same demographic characteristic. Strong and highly significant predictive power was only found for gender for "radio" and income and age for "loudspeaker." It is possible that respondents of lower socio-economic status were using these media modes to gather localized information to supplement the generalized information they were receiving from television. From these results, it seems that those who do not or cannot use the Internet fall back on simpler media modes in order to gather their localized disaster information, as illustrated in Figure 2.

4. Conclusion

In this paper, it was shown that media usage behavior during the 2011 Thai flood was not the same across the surveyed sample but depended on their demographic characteristics. The dissemination of information during future disasters should therefore take this difference into account, with particular consideration of the needs of people with lower socio-economic status.

Acknowledgement

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References

[1] Henry, M., Kawasaki, A., Meguro, K., "Information collection of disadvantaged populations during the 2011 Thai flood," Journal of Social Safety Sciences, No. 21, pp. 241-250, 2013. (in Japanese)